

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
12 February 2004 (12.02.2004)

PCT

(10) International Publication Number
WO 2004/013290 A3

(51) International Patent Classification⁷: **C07H 21/04**,
C12N 15/00, 15/09, C07K 5/00

Pinion Court, Gaithersburg, MD 20878 (US). **HARTLEY, James, L.**; 7409 Hillside Drive, Frederick, MD 21702 (US).

(21) International Application Number:
PCT/US2003/024064

(74) Agents: **ESMOND, Robert, W.** et al.; Sterne, Kessler, Goldstein & Fox, P.L.L.C., 1100 New York Avenue, Washington, DC 20005 (US).

(22) International Filing Date: 4 August 2003 (04.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/400,704 5 August 2002 (05.08.2002) US
60/403,095 14 August 2002 (14.08.2002) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant: **INVITROGEN CORPORATION** [US/US];
1600 Faraday Avenue, Carlsbad, CA 92008 (US).

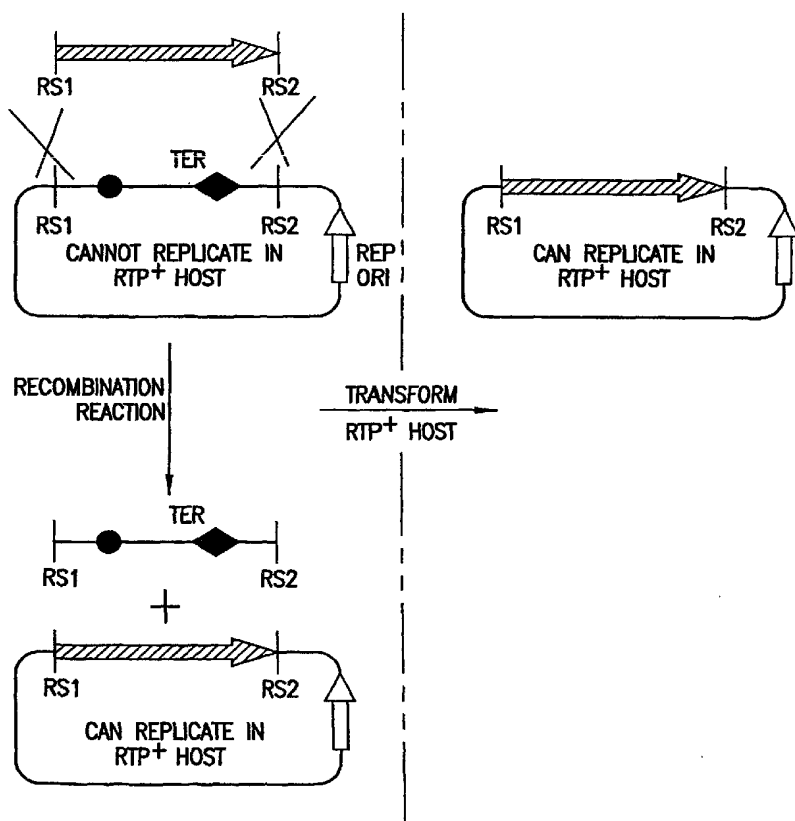
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

(72) Inventors: **BYRD, Devon, R., N.**; 51 Cornwallis Drive, Fredericksburg, VA 22405 (US). **YOUNG, Alice**; 11116

[Continued on next page]

(54) Title: COMPOSITIONS AND METHODS FOR MOLECULAR BIOLOGY

(57) Abstract: The present invention provides materials and methods for the utilization of the specific interaction of replication termination sequences with their binding proteins in molecular biology applications.





ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
22 July 2004

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/24064

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07H 21/04; C12N 15/00, 15/09; C07K 5/00

US CL : 536/23.1; 435/91.1, 320.1, 69.1; 530/350

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.1; 435/91.1, 320.1, 69.1; 530/350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,251,674 B1 (TOBIN et al) 26 June 2001 (26.06.2001), see the entire patent.	1-98
X,E	US 2003/0176644-A1 (BYRD et al) 18 September 2003 (18.09.2003), see the entire application, especially paragraphs 0146-0189.	1-98
X,P	WO 02/062957 A2 (INVITROGEN CORPORATION) 15 August 2002 (15.08.2002), see the entire application, especially paragraphs 00134-00234.	1-98



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

05 April 2004 (05.04.2004)

Date of mailing of the international search report

11 MAY 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Gerald G Leffers Jr., PhD

Telephone No. (703) 308-0196

INTERNATIONAL SEARCH REPORT

PCT/US03/24064

Continuation of B. FIELDS SEARCHED Item 3:

STN: MEDLINE, EMBASE, BIOSIS, CAPLUS EAST: USPAT, US PGPUBS, EPO, JPO, DERWENT
inventors' names, recombinational cloning, ter\$1, replication termination proteins